

Appl. No. 10/542,225
Amtd. Dated December 28, 2007
Reply to Office Action of September 28, 2007

Attorney Docket No. 81887.0128
Customer No.: 26021

REMARKS/ARGUMENTS

Claims 1, 5, 7, and 11 are the independent claims. Claims 1-12 are pending in the application. Claims 5 and 11 are amended. Reexamination and reconsideration of the application, as amended, are respectfully requested.

CLAIM REJECTION UNDER 35 U.S.C. § 103

Claims 1-4, 6-10, and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shi (U.S. Patent No. 6,320,855) in view of Andrus (U.S. Publication No. 2003/0203735); claims 5 and 11 stand rejected under the same over Shi in view of Petersson (U.S. Patent No. 7,016,320); Applicant respectfully traverses herein the rejection with respect to the independent claims 1 and 5.

INDEPENDENT CLAIM 1

Independent claim 1 recites the following:

A wireless communication terminal comprising:
a measurement section that measures quality of a signal transmitted from a base station;
a determination section that determines whether or not handoff is to be performed based on a measurement result of the measurement section and a criterion of the determination of the handoff; and
a handoff section that performs the handoff based on a determination result of the determination section,
wherein the determination section changes the criterion of the determination of the handoff when the handoff section performs the handoff in a predetermined repetition pattern.

Shi and Andrus do not disclose or suggest, “[T]he determination section changes the criterion of the determination of the handoff when the handoff section performs the handoff in a predetermined repetition pattern,” as recited in independent claim 1.

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THE ACTION FAILS TO ESTABLISH PRIMA FACIE CASE OF OBVIOUSNESS

The Office bears the burden to affirmatively establish prima facie obviousness. The Action, however, fails to meet that burden. Applicant respectfully submits that merely citing massive portions of prior art then asserting the prior arts teach the features of the claimed invention, without showing a nexus between the features and the citation, fall short of that requirement. For example, regarding the feature “when the handoff section performs the handoff in a predetermined repetition pattern,” the Action recites “Andrus discloses a repetition pattern (see sections [6]. [27]).” (Emphasis is original in the Action.) The Action fails to demonstrate what elements in Andrus constitute the repetition pattern, and how those elements teach recognizing the handoff section performing the handoff in a predetermined repetition pattern. The Action also fails to demonstrate what “repetition pattern” was recognized in Andrus.

The Action’s assertion regarding the feature “wherein the determination section changes the criterion of the determination of the handoff when ...” further illustrates the Action’s failure to affirmatively establish prima facie obviousness. To assert Shi teaches that feature, the Action merely repeats the features and cites Shi col. 5, lines 15-20, 50-67, col. 6 lines 1-45, col. 7 lines 30-67, and finally, col. 8 lines 1-65. Applicant notes the Action cites over 1,500 words in Shi, yet provides not a word on what Shi’s “criterion” is (let alone the changed “criterion”).

The Office cannot affirmatively establish prima facie case of obviousness merely by *ipse dixit*. As demonstrated, the Action falls short of providing the necessary reasonable nexus between the applied references and the features of the claimed invention (or any nexus at all). **Accordingly, withdrawal of the 35 U.S.C. 103(a) rejections is respectfully requested.**

THE APPLIED REFERENCES DO NOT TEACH THE FEATURES OF
CLAIM 1

Regardless of the Action's deficiencies in establishing the *prima facie* obviousness, Shi and Andrus are not seen to render obvious the features of claim 1. In particular, the applied references fail to disclose or suggest "[T]he determination section changes the criterion of the determination of the handoff when the handoff section performs the handoff in a predetermined repetition pattern" recited in that claim.

I. The applied references do not teach changing the criterion of handoff determination

The features recited in claim 1 provide that the determination section of a wireless communication terminal changes the criterion for handoff (when a predetermined pattern of handoffs is detected). FIG.2 of Applicant's specification provides an example of the change of criterion. In step 104 of that figure, the predetermined pattern of handoffs is detected and the criterion of handoff is changes. The threshold value for determining ordinary idle handoff is γ . After the detection of the predetermined repetition pattern, the threshold value is changed to γ' by adding a predetermined value X to γ (*Applicant's specification FIG. 2; page 14, lines 6-21*).

The applied references do not disclose or suggest changing the criterion for determination of handoff as recited in the claims. Because the Action fails to specify, Applicant assumes the Shi's criterion for determination of handoff is the formula below:

$$[E_A(t_i) - E_B(t_i)] + [(Mx(POS_A(t_i) - POS_A(t_{i-1})) \times Ee_A(t_i) / E_A(t_i)) - (Nx(POS_B(t_i) - POS_B(t_{i-1})) \times Ee_B(t_i) / E_B(t_i))] \quad (Shi col.8, lines 31-32).$$

Shi's formula for handoff determination, no matter how complicated, remains constant.

In contrast, the example in Applicant's specification provides that the formula for ordinary handoff determination is γ . When the predetermined handoff repetition pattern is detected, the formula is changed to $\gamma + X$. Shi's formula does not change and therefore, cannot disclose or suggest this feature of claim 1. Andrus does not disclose or suggest this feature of claim 1, and the Action does not assert otherwise.

II. The applied references do not teach a predetermined repetition pattern of handoffs

The Specification (*at page 11, line 19 – page 13, line 5*) provides an example of the predetermined repetition pattern of handoffs. Here, the predetermined repetition pattern is base station A (the n-5 base station) to base station B (the n-4 base station), then B to A (the n-3 base station), then A to B (the n-2 base station), then B to A (the n-1 base station), then A to B (the n base station) again. In this embodiment, the predetermined repetition pattern is the n-5, n-3, and n-1 base stations are the same (A), and the n, n-2, and n-4 base stations are the same (B). In short, the example repetition pattern is connecting to base stations A-B-A-B.

The Action asserts Andrus teaches the feature of "a predetermined repetition pattern." Applicant respectfully disagrees with that assertion.

Andrus teaches a base station (access point in Andrus) having multiple channels. A mobile terminal (access terminal in Andrus) connects to the base station and is assigned one of the terminals. The mobile terminal stores the assigned channel for the base station. In a subsequent connection to the base station, the mobile terminal checks the stored assigned channel and the default channel of the station for signal quality. According to Andrus, the feature of storing the previous connected channel and checking the stored channel in subsequent connection helps to reduce unnecessary handoffs (*Andrus paragraphs [0026] and [0027]*).

Andrus further provides with an example in FIG. 1 (*also see Andrus paragraphs [0028] – [0030]*). In FIG. 1, access terminal **106A** is connected to access point **104A** on channel **C4**, indicated by a darker connection. Access point **104A** broadcasts a neighbor list that includes access points **104B** and **104C**. The neighbor list broadcasted to the access terminals monitoring channel **C4** and includes default channels of **C3** for both access points in the list. When channel information of neighbors is unknown, an arbitrary default channel such as **C1** is assigned. In addition to measuring the quality of channel **C4** on access point **104A**, access terminal **106A** measures the quality of channel **C3** on access point **104B** and channel **C3** on access point **104C**, indicated by a lighter connection. Any handoff determination will take these measured values into account. In this example, access terminal **106A** has previously handed off to access point **104C** and determined that its assigned channel on that access point is indeed **C3**, which happened to be the same as the default channel. Therefore, the measured channel quality for access point **104C** will include the relevant frequency dependent characteristics. When the assigned channel is different from the default channel, the measured channel quality for access point **104B** will not include relevant frequency dependent characteristics. It is possible that access terminal **106A** may hand off to access point **104B**, determine the assigned channel, switch to it, and find a channel of insufficient quality. In this case, access terminal **106A** can measure the appropriate channels on access points **104A** and **104C**, and a more reliable determination can be made for subsequent handoff. In this example, when the assigned channel for access terminal **106A** on access point **104B** is channel **C2**, the measurements made on channel **C3** will not contain any relevant frequency dependent characteristics of the channel. It is also possible that access point **104B** will transmit additional neighbors for which access terminal **106A** only has the

default channel. However, as access terminal **106A** roams among access points it has previously visited, the frequency dependent channel characteristics can be taken into account, thus resulting in better handoff decisions. For example, the assigned channel for access point **104B**, **C2**, is stored to avoid the previously described situation in which access terminal **106A** monitored the default channel, **C3**, on access point **104B**. (*Id.*)

Applicant respectfully submits that merely storing an assigned channel previously connected is not “a predetermined repetition pattern.” In the example above, Andrus teaches that when access point **104B** is connected again, the signal quality of stored channel **C2** is measured. It is plainly clear Andrus does not disclose or suggest “a predetermined repetition pattern” as recited in claim 1.

Shi does not disclose or suggest this feature of claim 1, and the Action does not assert otherwise. Since Shi and Andrus fail to disclose all the features of claim 1, that claim is allowable over the applied references.

Independent claim 7 recites similar features as claim 1 and is therefore also allowable over Shi and Andrus for at least the same reasons as claim 1. The allowance of claims 1 and 7 is respectfully requested.

Claims 2-4, 6, 8-10, and 12 depend directly or indirectly from claims 1 and 7; those claims are also allowable based on their base claims. The allowance of claims 2-4, 6, 8-10, and 12 is thus also respectfully requested.

INDEPENDENT CLAIM 5

Amended independent claim 5 recites the following:

A wireless communication terminal comprising:
a measurement section that measures quality of a signal transmitted from a base station;

a determination section that determines whether or not handoff is to be performed based on a measurement result of the measurement section and a criterion of the determination of the handoff; and

a handoff section that performs the handoff based on a determination result of the determination section, wherein the determination section determines whether or not the handoff is to be performed based on a value obtained by time-averaging the measurement result of the measurement section for a predetermined period, and determines whether or not the handoff is to be performed based on a value obtained by number-averaging the measurement result of the measurement section through a predetermined number of measurement.

Shi and Petersson do not disclose or suggest basing the handoff determination on “a value obtained by time-averaging the measurement result of the measurement section for a predetermined period” and “a value obtained by number-averaging the measurement result of the measurement section through a predetermined number of measurement” recited in amended independent claim 5.

THE ACTION FAILS TO ESTABLISH PRIMA FACIE CASE OF OBVIOUSNESS

As with the rejection of claim 1, the Action fails to properly establish prima facie case of obviousness regarding claim 5. The Action merely cites portion of the Shi and Petersson without providing a nexus between the cited portions and the features of claim 5 (let alone a reasonable nexus). In particular, the Action fails to establish that Petersson teaches or suggests “a value obtained by time-averaging the measurement result of the measurement section for a predetermined period” and “a value obtained by number-averaging the measurement result of the measurement section through a predetermined number of measurement” recited in amended independent claim 5.

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The Office cannot affirmatively establish *prima facie* case of obviousness merely by *ipse dixit*. As demonstrated, the Action falls short of providing the necessary reasonable nexus between the applied references and the features of the claimed invention (or any nexus at all). **Accordingly, withdrawal of the 35 U.S.C. 103(a) rejections is respectfully requested.**

THE APPLIED REFERENCES DO NOT TEACH THE FEATURES OF CLAIM 5

Independent claim 5 is amended according to Applicant's specification page 19, lines 14-20 and page 20, lines 15-19. Amended independent claim 5 recites that the determination for handoff is made based on "a value obtained by time-averaging the measurement result of the measurement section for a predetermined period" and "a value obtained by number-averaging the measurement result of the measurement section through a predetermined number of measurement."

The second embodiment in Applicant's specification incorporates the features of amended claim 5 (*Applicant's specification FIG. 3; page 15, line 23 – page 21, line 17*). Step 210 of FIG.3 illustrates that the determination for handoff is made based on the mean value of measuring the C/I values a predetermined number of times (*Applicant's specification page 19, line 21 – page 20, line 20*). Step 205 of FIG. 3 illustrates that the determination for handoff is made based on the time mean value of the C/I acquired over a predetermined period (*Applicant's specification page 18, line 9 – page 20, line 20*).

Applicant respectfully notes that "time-average" is a mathematical formulation well with the knowledge of persons of ordinary skill in the art. Time-average or time mean value refers calculating means with time is a weighted component. Typically, time average or time mean value is represented by the area

under a curve in a figure. In the example of FIG. 5 of Applicant's specification, time average of C/I value of A is the area under the solid line A.

Using time average of a signal quality as a basis of handoff determination alleviates the problem of instantaneous interruption. Applicant's specification notes that instantaneous interruption causes frequent and false idle handoffs. Instantaneous interruption is a sudden and very short duration drop in the quality of a signal. FIG. 5 of Applicant's specification illustrates the problem. In that figure, instantaneous interruption of signal A occurred three times, leading to three handoffs to station B (*Applicant's specification page 15, last line – page 16, lines 18*). In using time average of a signal quality as a basis of handoff determination, the effect of the instantaneous interruption is greatly reduced because of its short duration. Accordingly, unnecessary handoffs due to instantaneous interruption are reduced.

Petersson does not disclose or suggest those features of claim 5. Petersson notes the problem for the subscriber station **MS** to continuously measure the pilot signal strength; such a measuring scheme drains the battery power in the subscriber station **MS** (*Petersson col. 6, lines 37-45, cited by the Action*). One known solution is for the network control means **RNC** to notify the Petersson subscriber station **MS** time intervals to measuring connection quality. Petersson note that the network control means **RNC** boosts its power before or after the measurement intervals. But such a scheme still has some drawbacks (*Petersson col. 8, lines 45-67, cited by the Action*). Next, Petersson addresses the issue of degradation of service during the measuring intervals. Peterson notes that the issue can be compensated by increasing the transmission power at the beginning or end of the time interval (*Petersson col. 17, lines 30-45, cited by the Action*). Alternatively, the issue of degradation can be compensated by changing the transmission rate before and after the measuring time intervals (*Petersson col. 18, lines 15-30, cited by the Action*).

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The fourth embodiment of Petersson is teach that a data transmission between the base transceiver station **RBS** and the subscriber station **MS** is carried out by transmitting data frames **PR** in a compressed mode of operation. In the compressed mode of operation, the data is compressed in the time slots and a compressed mode determining means **CMDM** in the subscriber station **MS** detects the compressed mode of operation. According to Petersson, the network informs the subscriber station **MS** when and for how long time it shall perform measurements on another frequency and this is used as a complement to compressed mode (*Petersson col. 20, lines 25-40, cited by the Action*).

It is plainly clear that Petersson has nothing to do with the features of the claimed invention.

Shi cannot remedy the deficiencies of Petersson discussed above, and the Action does not assert otherwise. Since Shi and Peterson fail to disclose all the features of claim 5 as amended, that claim is allowable over the applied references.

Independent claim 11 recites similar features as claim 5 and is therefore also allowable over Shi and Petersson for at least the same reasons as claim 5. The allowance of claims 5 and 11 is respectfully requested.

Claims 6 and 12 depend directly or indirectly from claims 5 and 11; those claims are also allowable based on their base claims. The allowance of claims 6 and 12 is thus also respectfully requested.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los

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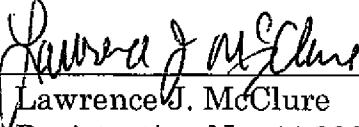
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Angeles, California telephone number (310) 785-4600 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

Date: December 28, 2007

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